

Application Serial No. 10/695,337
Reply to Office Action of June 30, 2005

PATENT
Docket: CU-3418

REMARKS

In the Office Action, dated June 30, 2005, the Examiner states that Claims 1-34 are pending and Claims 1-34 are rejected. By the present Amendment, Applicant amends the claims.

In the Office Action, Claims 2, 7, 19 and 24 are objected to for minor informalities. The claims have been amended to overcome these informalities.

In the Office Action, Claims 1-3, 7, 8, 12, 14, 16-20, 24, 25, 29, 31, 33 and 34 are rejected under 35 U.S.C. §102(b) as being anticipated by Curtis (US 2001/0046574). Claims 13 and 30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Curtis. Claims 4, 5, 10, 11, 21, 22, 27 and 28 are rejected under 35 U.S.C. §103(a) as being unpatentable over Curtis in view of Mueller et al. (US 6,403,231). Claims 6 and 23 are rejected under 35 U.S.C. 103 §(a) as being unpatentable over Curtis in view of Ross et al. (US 6,521,690). Claims 9 and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Curtis in view of Usuki et al. (US 4,889,885). Claims 15 and 32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Curtis in view of Reighard et al. (US 2004/0005389). The Applicant considers these rejections overcome by the amendments to the claims.

The subject matter of amended Claim 1 is a lamination product comprising at least of an outermost layer, a paper base, a barrier layer, an innermost layer, layered in this order, wherein the barrier layer is made of a coating film of a resin composition comprising a polyamide resin and an inorganic lamellar compound; and wherein the innermost layer comprises an ethylene- α -olefin copolymer polymerized with a metallocene catalyst.

Curtis discloses a barrier laminate for liquid packaging, comprising a paperboard substrate (paragraph 0027), the external surface thereof being coated with a layer of LDPE (paragraph 0027), and the internal surface thereof being coated with a polymeric nano-composite oxygen barrier layer formed from a polymeric blend comprising one or more resins having a layered silicate dispersed therein (paragraph 0027). Further, an innermost layer X which is any of EVOH, polyethylene isophthalate, polyethylene terephthalate, acid or glyco-modified copolymers polyethylene terephthalate and polyethylene isophthalate, polyamides, polycaprolactams and polycarbonates can be formed on the polymeric nano-composite oxygen barrier layer (paragraph 0031).

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The rejection indicates that "The innermost layer of the laminate is low density polyethylene (Figure 11)" (Office Action, page 3, lines 7-9 and page 7, line 10). However, in Curtis, there is no description regarding Figs. 9-12. Therefore, it is not clear whether what is shown by Fig. 9 and Fig. 11 is a final product or an intermediate, and thus, it is also not clear that the layers of LDPE illustrated in Figs. 9 and 11 are the innermost layer or not. Thus, Curtis fails to disclose an innermost layer of LDPE, or an ethylene- α -olefin copolymer polymerized with a metallocene catalyst.

Next, the rejection indicates "Reighard et al. teach a low density polyethylene copolymer polymerized with a metallocene catalyst as the innermost layer of a laminate". Although Reighard et al. teach an innermost layer of metallocene low density polyethylene in a barrier laminate structure, there is no evidence that the polyethylene is copolymer. Namely, what is disclosed in Reighard et al. is "metallocene low density polyethylene", but not "metallocene linear low density polyethylene", i.e., "metallocene L-LDPE" or "metallocene LLDPE". From only the word "Metallocene", it is not clear that the LDPE is LLDPE or ethylene- α -olefin copolymer. Therefore, even if one skilled in the art combined the inner most layer of Reighard et al. with the lamination structure of Curtis, the resultant article is not the same as the subject matter of Claim 1. Additionally, there is not reasonable motivation for substituting the innermost X layer of EVOH, etc. in Curtis with a polyolefin type polymer from Reighard et al. Further, the other references, namely, Mueller et al., Ross et al., Usuki et al. do not disclose or teach that the innermost layer is the ethylene- α -olefin copolymer polymerized with a metallocene catalyst.

Thus, the subject matter of Claim 1 is not considered obvious from cited references.

With regard to Claims 2-3 and 19-20, the rejection indicates that "each layer of the lamellar compound disclosed by Curtis has a size of 30nm (30 Angstroms; paragraph 0013)". However, what Curtis discloses is "the layered silicate preferably has an interlayer distance of about 20A or above, and most preferable at least 30A" (paragraph 0013). Curtis does not disclose the size in the planar direction as claimed in Claims 2 and 19. Additionally, the unit conversion by the Examiner is incorrect. 30 Angstroms is 3nm, not 30nm.

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With regard to Claims 9 and 26, the rejection indicates that "Usuki et al. teach that the amount of inorganic lamellar compound (silicate; column 4, lines 40-42) in a polymer composite (dispersed in polyamide; column 4, lines 40-42) is selected depending on the desired reinforcing effect and molding property (column 4, lines 45-50). However, the composite material of Usuki et al. uses a resin other than polyamide as the matrix resin. Thus, the above assertion made in the rejection (dispersed in polyamide) is incorrect.

The subject matter of Claim 1 and 18, as well as those of Claims 9 and 26 which depend from Claim 1 or 18, respectively, is that the barrier layer is a resin composition comprising a polyamide resin and an inorganic lamellar compound. Thus, the amount of inorganic lamellar compound in the non-polyamide type composite material of Usuki et al. does not teach the amount of inorganic lamellar compound in the polyamide type composite material according to the present invention. Further, in Claims 9 and 26, the ratio is based on volume, while in Usuki et al. the ratio is based on weight, thus, a direct comparison cannot be made.

In light of the foregoing response, all the outstanding objections and rejections are considered overcome. Applicant respectfully submits that this application should now be in condition for allowance and respectfully requests favorable consideration.

Respectfully submitted,



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